REVIEW ARTICLE

Impact of Lifestyle on the Incidence of Heart Disease: A Systematic Literature Review

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Keywords: Heart disease, Cardiovascular diseases, Preventive medicine, Public health, Cardiovascular prevention.

ABSTRACT

Introduction: Cardiovascular diseases (CVDs) represent one of the main causes of morbidity and mortality globally. Several lifestyle factors, such as diet, physical activity, alcohol consumption and smoking, have been widely studied for their impact on the incidence of heart disease. This systematic review seeks to analyse the relationship between lifestyle habits and the risk of developing CVD, consolidating scientific evidence on the influence of healthy behaviours in preventing these conditions.

Methods: A systematic review of prospective studies published up to February 2023 was carried out, using databases such as PubMed, EMBASE and Web of Science. Studies that investigated the association between multiple lifestyle habits and the incidence of CVD were included. Statistical analysis involved estimates of relative risk (RR) and 95% confidence intervals (CI), using fixed and random effects models. In addition, subgroup analyses and meta-regression were conducted to assess the robustness of the findings.

Results: The results indicated that individuals who adopt a set of healthy habits have a significant reduction of 58% in the risk of CVD and 55% in mortality from CVD. Among those already diagnosed with cardiovascular disease, adherence to a healthy lifestyle reduced the risk of disease recurrence by 62% and mortality from all causes by 67%. The dose-response analysis revealed that each increase in a healthy habit was associated with a 17% decrease in the risk of CVD and 19% in cardiovascular mortality.

Discussion: The findings reinforce the importance of adopting multiple healthy habits in the prevention and management of CVD. Public health strategies should focus on promoting behavioural changes, encouraging the practice of physical activity, a balanced diet and smoking cessation. In addition, prevention policies should consider integrated approaches that combine multiple lifestyle factors to maximise health benefits.

Conclusion: The systematic review confirms that the adoption of healthy habits is strongly associated with the reduction of CVD risk and improvement of prognosis in individuals already diagnosed. Rather than focusing on just one behaviour, it is recommended to promote multiple healthy habits as an effective strategy in preventing and controlling cardiovascular diseases.

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What do we already know about this topic?
The impact of lifestyle on the incidence of heart disease has been widely studied. Research indicates that habits such as healthy eating, regular exercise, stress management and smoking cessation can significantly reduce the risk of cardiovascular disease.
A systematic review published in the International Journal of Behavioral Nutrition and Physical Activity analyzed 71 prospective studies and concluded that individuals who adopt a healthy lifestyle have a 58% reduction in the risk of cardiovascular disease and a 55% reduction in mortality from these conditions. In addition, for those who already have heart disease, adopting healthy habits can reduce the risk of recurrence by 62% and mortality from all causes by 67%.
Another study published by the European Society of Cardiology highlights that factors such as not smoking, staying physically active and following a balanced diet are strongly associated with a reduced risk of heart disease, cancer and overall mortality.
What is the main contribution to Evidence-Based Practice from this article?
The main contribution of the article "Impact of Lifestyle on the Incidence of Heart Disease: A Systematic Review" to evidence-based practice lies in its detailed analysis of lifestyle factors that influence the incidence of heart disease. It provides a systematic review of scientific studies that demonstrate how habits such as healthy eating, regular physical activity, stress management, and smoking cessation can significantly reduce the risk of cardiovascular disease.
In addition, the article reinforces the importance of preventive medicine, highlighting effective strategies to reduce mortality and improve patients' quality of life. It can also serve as a basis for public policies aimed at promoting health and preventing heart disease.
What are this research's implications towards health policy?
The article "Impact of Lifestyle on the Incidence of Heart Disease: A Systematic Review" has profound implications for theory, clinical practice and public health policies, becoming an important resource in the prevention and treatment of cardiovascular diseases.
In the theoretical field, the research contributes to the understanding of the mechanisms that relate daily habits to the incidence of heart disease. By examining factors such as diet, physical activity and stress management, the study strengthens epidemiological models and paves the way for future investigations on preventive interventions and their impact on longevity. The systematic analysis of the scientific literature offers a comprehensive view of how small changes can significantly reduce cardiovascular risk.In clinical practice, the evidence presented reinforces the need for a multidisciplinary approach to patient care. Physicians and health professionals can use the study data to recommend personalized strategies, including cardiac rehabilitation programs that integrate lifestyle changes. In addition, the research highlights the importance of preventive medicine, highlighting how adopting healthy habits can improve quality of life and reduce mortality from heart disease.In the context of health policies, the study justifies investments in programs that promote healthy habits and raise awareness among the population about the risks of a sedentary lifestyle. Scientific evidence can support government actions aimed at preventing cardiovascular diseases, encouraging educational campaigns and regulations that reduce risk factors, such as excessive consumption of ultra-processed foods and a sedentary lifestyle. In addition, the article can influence the formulation of guidelines that encourage physical activity and improvements in the population's diet.By integrating scientific knowledge, clinical application and health policies, this article becomes a valuable tool for reducing the incidence of heart disease. Its findings reinforce the need for a comprehensive approach to promoting cardiovascular health, encouraging the adoption of evidence-based practices both in individual care and in the formulation of effective public policies.
Authors' Contributions Statement:
Holanda, Thayssa Vitoria Oliveira Sousa, main author and wrote introduction, methodology and discussion of the work. Melo, Marcos Luiz Silva, co-author wrote part of the introduction, results and conclusion of the work.

Introduction:

Cardiovascular diseases (CVDs) are responsible for millions of deaths annually and represent a major challenge for health systems. Studies show that behavioural factors, such as poor diet, physical inactivity, and smoking, are closely linked to the development of these conditions. A healthy lifestyle, risk factor modification, and medication adherence are vital to prevent mortality and recurrent events in individuals with CVD. Previous studies have shown the preventive effect of lifestyle modifications, including smoking cessation, exercise, healthy diet, and exercise on mortality among patients with CVD (WHO, 2021).

Epidemiology

CVDs are estimated to be responsible for approximately 18.6 million deaths annually, representing approximately 31% of all deaths worldwide. The main cardiovascular diseases include ischemic heart disease, stroke, heart failure (HF) and hypertensive diseases (WHO, 2021).
The association between CVDs and lifestyle-

related risk factors has been widely documented, showing how individual habits can directly influence heart health and the incidence of these conditions (WHO, 2021). Modifiable risk factors, such as poor diet, physical inactivity, smoking and excessive alcohol consumption, play a central role in the increasing global prevalence of CVDs, including acute myocardial infarction, stroke, HF and hypertensive diseases (Chow et al., 2010).
Diets rich in saturated fats, sodium and simple sugars are directly associated with the development of hypertension (HTN), dyslipidemia and obesity, which are primary risk factors for CVDs. Excessive consumption of ultra-processed foods, which often contain high levels of sodium and trans fats, can lead to an increase in blood pressure (BP) and low-density lipoprotein (LDL), while reducing high-density lipoprotein (HDL) levels. On the other hand, diets based on fruits, vegetables, whole grains, lean proteins and unsaturated fats demonstrate a positive impact on reducing cardiovascular risk, contributing to arterial health and glycemic control (Chow et al., 2010).
Although moderate alcohol consumption, especially red wine, has been associated with certain cardiovascular benefits, alcohol abuse can lead to hypertension, alcoholic cardiomyopathy, and arrhythmias. The impact on the metabolic system and increased triglycerides are additional concerns related to uncontrolled consumption. Excessive alcohol consumption is associated with metabolic alterations and hypertension, while chronic stress contributes to cardiovascular dysfunction through hormonal and inflammatory mechanisms (Bae et al., 2021).
These risk factors are often interconnected, creating a cumulative effect on cardiovascular health. An inadequate diet can aggravate obesity, which in turn is associated with a sedentary lifestyle and the risk of hypertension. Similarly, smoking combined with poor dietary habits exponentially increases the risk of cardiac events (Bae et al., 2021).
In Brazil, CVDs are also the leading cause of death, with increasing prevalence due to population aging and urbanization, which promote less healthy lifestyle habits. National studies indicate that approximately 5.3% of the Brazilian adult population has already been diagnosed with some type of CVD, with the most vulnerable groups being those with lower educational levels and limited access to health care (Bae et al., 2021).
In Brazil, CVDs are responsible for approximately 30% of annual deaths, totaling approximately 388,177 deaths in 2023. Among the main causes are acute myocardial infarction and stroke, which together account for a significant portion of these deaths. Hypertension, poorly controlled diabetes (DM), obesity, and a sedentary lifestyle are predominant risk factors in the Brazilian population. Data from Vigitel indicate that approximately 25% of adults have hypertension, while excess weight affects almost 60% of the population. In addition, there is inequality in access to care, especially in rural and less developed regions, where specialized care may be limited, increasing mortality and complication rates (WHO, 2021).
Globally, CVDs cause an estimated 18.6 million deaths annually, accounting for 31% of all deaths worldwide. Ischemic heart disease and stroke are the most prevalent conditions, accounting for 85% of these deaths. More than 75% of CVD deaths occur in low- and middle-income countries, where inequality in access to prevention and treatment is striking. Factors such as urbanization, changes in dietary patterns, and increased physical inactivity have driven the incidence of CVDs worldwide. Despite advances in treatments and technologies, lack of awareness of warning

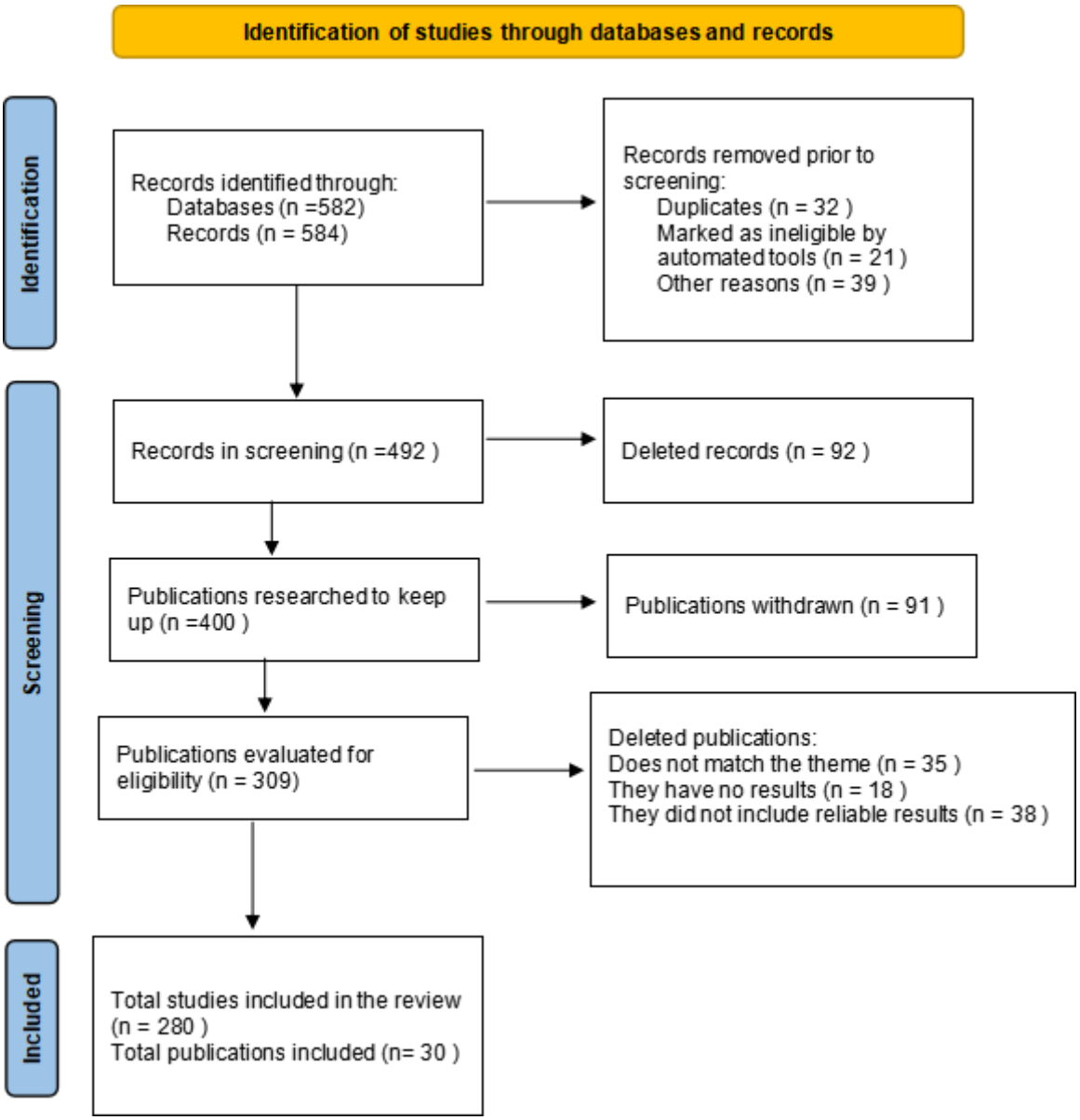
signs and prevention remains a significant challenge (WHO, 2021).
A Cochrane systematic review demonstrated that exercise-based cardiac rehabilitation reduced all-cause mortality by 26% (Heran et al., 2011). Another systematic review also reported that smoking cessation can reduce the risk of death and myocardial infarction in patients with CVD by 30% (Critchley, & Capewell, 2004). In the 2017 fact sheet, the World Health Organization (WHO) reported that approximately 75% of recurrent vascular events can be prevented when patients are adherent to medications, such as aspirin, β-blockers, angiotensin-converting enzyme inhibitors (ACEIs), and statins, and practices such as smoking cessation (WHO, 2021).
On the other hand, self-management of cardiovascular disease risk factors is often challenging. A previous study reported that approximately one-third of patients with acute coronary syndrome persisted in smoking or did not adhere to diet or exercise recommendations (Chow et al., 2010). Therefore, developing tools to improve self-management and evaluating their effectiveness is crucial. Text messaging using a mobile phone has been suggested as a potential tool because it is accessible and low-cost for older individuals with congenital heart disease (Beratarrechea et al., 2014). Early research has suggested the potential benefit of text messaging interventions in lifestyle modification (Pfaeffli, Dobson, Whittaker, & Maddison, 2016). On the other hand, a Cochrane review found that the evidence was not strong for such interventions due to small participant numbers and risk of bias (Vodopivec-Jamsek, de Jongh, Gurol-Urganci, Atun, & Car, 2012). Furthermore, previous studies were limited to the short-term consequences of text messaging interventions and subjective measures of outcomes (Vodopivec-Jamsek, de Jongh, Gurol-Urganci, Atun, & Car, 2012; Coughlin et al., 2015; de Jongh, Gurol-Urganci, Vodopivec-Jamsek, Car, & Atun, 2012). In studies, Chow et al (2015) reported encouraging results in a large-scale RCT, where a text messaging program could alter objective measures of CVD risk factors and self-reported lifestyle after 6 months of follow-up. On the other hand, it is unclear whether such interventions would be effective in an Asian population with a different culture and lifestyle.

Methodology

Prisma Flowchart

Electronic databases such as PubMed, Scopus and Web of Science were searched using terms related to the impact of lifestyle on the incidence of heart disease and systematic review. In addition, the references of the included studies were analysed to identify additional relevant research.
After removing duplicates, the titles and abstracts of the selected studies were evaluated according to the previously established inclusion criteria. Studies that did not meet these criteria were excluded. The full texts of potentially relevant studies were obtained and analysed in detail to verify their eligibility, and those that did not provide sufficient data or were not aligned with the defined criteria were discarded.
Data on lifestyle-related risk factors, participant characteristics, methodologies employed and cardiovascular outcomes were extracted from the included studies.
The results were synthesized qualitatively and, when possible, quantitatively, identifying patterns and trends in the relationship between daily habits and the development of heart disease. Finally, the clinical and scientific

implications of these findings were discussed, highlighting the importance of adopting preventive strategies and promoting cardiovascular health.



CVDs are the leading cause of global mortality and are directly associated with lifestyle-related risk factors. It is necessary to understand how habits such as diet, physical activity, smoking and alcohol consumption influence the incidence of CVDs. The main objective is to investigate the relationship between modifiable risk factors associated with lifestyle and the occurrence of CVDs, based on evidence published in recent scientific studies. The main research question was to determine the impact of lifestyle factors on the incidence of heart disease. The PICO approach was used to define the question, where P (population) are adults (⩾ 18 years) at risk of developing CVDs. I (intervention) with lifestyle modification. C (comparison) where individuals without lifestyle modifications will be compared with those who have made lifestyle modifications. O (result): how the reduction in the incidence of CVDs occurred.

For this study, a search for articles was carried

out in scientific sources such as PubMed, Scopus, Scielo, Web of Science and Cochrane Library. To search for articles, the keywords that were used were: “cardiovascular diseases”, “lifestyle”, “risk factors”, “physical activity”, “diet”, “smoking” and “alcohol consumption”. The inclusion criteria were publications from the last 15 – 20 years, original studies or systematic reviews in humans, studies focusing on lifestyle risk factors (such as diet, smoking, exercise) (physical). Exclusion criteria were studies in languages other than Portuguese, English or Spanish and studies with weak methodology or inconclusive data.
To extract and analyse the data, a spreadsheet was created with relevant information, such as authors, year, location, population evaluated, risk factors analysed and main results. For the qualitative analysis, the trends observed in different studies were described, such as the role of diet or exercise in reducing cardiovascular risk. For statistics, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) tool was used to report the steps of the systematic review. The quality of the included studies was assessed using scales such as the Newcastle-Ottawa Scale..

Results

Inadequate diets play a substantial role in the development and progression of CVDs and are widely recognised as one of the main etiological factors for these conditions. Excessive consumption of foods rich in saturated fats, sodium, and simple sugars has been associated with an increased prevalence of primary risk factors, including hypertension, obesity, and dyslipidemia. These dietary components promote metabolic dysregulation and systemic inflammation, which create a pathological environment favourable to the development of chronic cardiovascular conditions.
Ultra-processed foods, characterised by high caloric density and low nutritional value, are identified as key elements in the progression of CVDs. Studies indicate that these foods often contain chemical additives that accelerate the accumulation of lipid plaques in the arterial wall, a process known as atherosclerosis. Atherosclerosis is recognised as one of the main causes of serious cardiovascular events, such as acute myocardial infarction and stroke. On the other hand, healthy dietary patterns, such as the Mediterranean diet, have demonstrated significant protective effects against the risk of CVDs. The Mediterranean diet is characterised by the abundant inclusion of fresh fruits, a variety of vegetables, whole grains, olive oil, and protein sources such as fish and seafood. Scientific evidence confirms that this dietary pattern promotes cardiovascular health by reducing LDL cholesterol levels, improving insulin sensitivity, and decreasing systemic inflammatory markers. The monounsaturated fatty acids present in olive oil, in addition to their antioxidant properties, play an essential role in mitigating oxidative stress and vascular inflammation.
In addition, foods rich in phenolic compounds, such as nuts, berries, grapes, and green tea, are indicated as allies in the prevention of CVDs. Polyphenols have antioxidant and anti-inflammatory properties, favouring the integrity of the vascular endothelium, reducing BP, and preventing platelet aggregation. The reduced risk of arterial thrombosis results in a lower predisposition to the development of acute and ischemic cardiac events.
Therefore, the impact of diets on cardiovascular health is robustly evidenced in the scientific literature. The adoption of interventions based on public policies and educational programs that encourage healthy eating practices constitutes an effective

strategy to reduce the incidence of CVDs..
The practice of physical exercise has significant benefits in the prevention and control of CVDs, as evidenced by multiple studies. In particular, aerobic activities, such as walking, running and swimming, play a central role in improving cardiovascular and metabolic parameters. These exercises are effective in reducing BP, both in normotensive individuals and in hypertensive patients. This decrease occurs due to the increase in blood vessel elasticity and better peripheral blood flow, which contribute to the reduction of vascular resistance. In addition, aerobic activities promote the modulation of lipid levels, increasing HDL cholesterol and reducing LDL cholesterol, which reduces the risk of atherosclerotic plaque formation.
Another significant benefit of regular physical exercise is the improvement of metabolic health. Aerobic exercises contribute to the regulation of glycemia, increased insulin sensitivity and reduced systemic inflammatory markers. These effects are particularly relevant in the prevention of CVDs, since factors such as insulin resistance and chronic inflammation are known to exacerbate the risk of CVDs.
The results of this review also show that physically active individuals have a lower incidence of CVDs compared to sedentary individuals. Physical exercise helps control body weight by increasing caloric expenditure and improving body composition, reducing visceral fat, which is associated with an increased cardiovascular risk. The reduction of systemic inflammation, promoted by physical activity, also plays a crucial role, since chronic inflammation is a predictor of serious cardiovascular events, such as acute myocardial infarction and stroke.
In addition to the direct cardiovascular benefits, physical exercise improves functional capacity, quality of life and mental health of individuals, creating a more holistic approach to the prevention of CVDs. The studies reinforce that public health strategies aimed at promoting physical exercise can have a significant impact on reducing morbidity and mortality associated with CVDs, being an essential tool in the fight against these diseases.
Smoking is widely recognised as one of the main preventable risk factors for the development of CVDs, being directly responsible for a series of pathological mechanisms that compromise vascular and cardiac health. The chemical components present in cigarettes, including carbon monoxide and several toxic substances, play distinct but interconnected roles in the progression of cardiovascular damage.
One of the main consequences of smoking is endothelial damage. The endothelium, the inner layer of blood vessels, plays a critical role in regulating vascular tone and protecting against atherosclerotic processes. Contact with cigarette toxins causes endothelial dysfunction, characterised by a decrease in the production of nitric oxide, a molecule essential for vasodilation. This dysfunction results in arterial stiffness, increased peripheral vascular resistance and, consequently, AH.
In addition, inhaled carbon monoxide competes with oxygen to bind to haemoglobin, forming carboxyhemoglobin. This significantly reduces the blood's ability to transport oxygen to tissues, causing cellular hypoxia. This condition not only increases the stress on the heart, which must work harder to supply enough oxygen, but also accelerates the development of atherosclerosis. The formation of atherosclerotic plaques, in turn, is exacerbated by systemic inflammation and increased oxidative stress caused by free radicals generated during cigarette smoking.
Studies have shown that smoking cessation is a

crucial and highly effective intervention in reducing cardiovascular risk. Positive changes in cardiovascular health are observed within the first few months after quitting. For example, BP and endothelial function begin to normalise, while LDL cholesterol levels are reduced. In addition, the risk of major cardiovascular events, such as myocardial infarction and stroke, decreases significantly over time.

The long-term benefits of smoking cessation are even more significant. In former smokers, the likelihood of developing CVD is gradually reduced, approaching the risk levels of individuals who have never smoked after approximately 10 years.

In summary, smoking is not only a single risk factor for CVD, but also amplifies the effects of other risk factors, such as DM and hypertension. Preventive interventions and effective cessation strategies have a significant impact on reducing the global burden of CVD.

Alcohol consumption is a risk factor with widely documented implications for cardiovascular health, with a biphasic relationship, with harmful effects at high doses and potential benefits at moderate doses. The association between different levels of alcohol consumption and the incidence of CVDs was analysed, focusing on the adverse effects of excessive use and the beneficial impacts observed in moderate consumption.

Excessive alcohol consumption is directly related to the development of several serious cardiovascular conditions, such as hypertension, alcoholic cardiomyopathy, and cardiac arrhythmias. Hypertension resulting from excessive alcohol consumption is associated with increased peripheral vascular resistance, caused by dysfunctions in the regulation of the autonomic nervous system and hormonal imbalances, such as increased production of angiotensin II. This prolonged increase in BP is an important risk factor for serious cardiovascular events.

Alcoholic cardiomyopathy, in turn, is a form of HF that results from the direct toxicity of alcohol on the myocardium, leading to degeneration of cardiac muscle fibres and reduced heart contraction capacity. This condition often progresses to congestive heart failure (CHF), hindering efficient blood circulation throughout the body. Cardiac arrhythmias, such as atrial fibrillation, occur due to the impact of alcohol on the electrical conduction of the heart, and have been frequently observed in chronic and occasional consumers of high doses of alcohol, in a phenomenon known as "holiday heart syndrome".

On the other hand, moderate alcohol consumption, particularly red wine, has been associated with protective effects on cardiovascular health. This benefit is attributed to the polyphenols present in the drink, especially resveratrol, which has antioxidant and anti-inflammatory properties. Polyphenols promote the protection of the vascular endothelium, reducing oxidative stress and preventing inflammation that can lead to the development of atherosclerotic plaques. In addition, controlled consumption of red wine has been shown to improve HDL cholesterol levels and reduce inflammatory markers, such as C-reactive protein (CRP), contributing to a reduced risk of CVDs.

Despite the potential benefits of moderate consumption, the data analysed highlight that the risks associated with excessive alcohol consumption far outweigh the benefits of controlled intake. Studies have shown that excessive use is associated with a higher incidence of acute cardiovascular events, in addition to systemic problems such as chronic inflammation, metabolic dysfunction and a compromised immune system. Moderation in

consumption is therefore essential to obtain the beneficial effects without harming health.
Chronic stress is widely recognised as a significant factor in increasing the risk of developing CVDs. This prolonged state of tension persistently activates the sympathetic nervous system, triggering a cascade of physiological events that are detrimental to the cardiovascular system. The mechanisms underlying this association involve prolonged activation of the hypothalamic-pituitary-adrenal (HPA) axis, leading to a persistent increase in the release of stress hormones such as cortisol and adrenaline. These hormones, when elevated for prolonged periods, contribute to systemic inflammation, endothelial dysfunction, and changes in BP regulation, favouring the development of hypertension and atherosclerosis.
In addition, chronic stress can negatively influence health behaviour, increasing the likelihood of harmful habits such as smoking, excessive alcohol consumption, and inadequate diet. Prolonged exposure to stress can also lead to changes in heart rate variability, reducing the body's ability to adapt to physiological challenges and increasing vulnerability to adverse cardiovascular events.
Regarding stress management strategies, studies indicate that interventions such as relaxation techniques, mindfulness, regular physical activity and psychological support can be effective in reducing the negative effects of stress on the cardiovascular system. Practising aerobic exercise, for example, has been associated with improved endothelial function and reduced circulating cortisol levels. In addition, psychotherapeutic approaches, such as cognitive behavioural therapy (CBT), can help individuals develop healthier coping mechanisms, reducing the physiological response to stress and, consequently, cardiovascular risks.

Prolonged activation of the sympathetic nervous system by stress leads to a sustained elevation of blood pressure. This chronic hypertension is the result of an increase in the release of catecholamines, such as adrenaline and noradrenaline, which promote blood vessel constriction and increase the load on the heart. In addition, chronic stress is associated with increased levels of cortisol, the main stress hormone, which plays a significant role in triggering systemic inflammatory responses. Excess cortisol is linked to endothelial dysfunction, which is characterised by reduced production of nitric oxide, a molecule essential for vasodilation and maintaining healthy blood vessels. This endothelial dysfunction creates an environment conducive to the development of atherosclerosis, a condition often associated with serious cardiovascular events.
Meditation and yoga are associated with decreased BP, improved heart rate, and reduced systemic inflammatory markers. In addition, these practices promote improved heart rate variability, an indicator of good cardiovascular health and resilience of the autonomic nervous system.
CBT stands out for its focus on modifying dysfunctional thoughts and stress-related behaviours. Patients who participate in regular CBT sessions report not only a reduction in the perception of stress but also significant improvements in clinical parameters such as BP and endothelial function.
The interaction between multiple risk factors, including poor diet, sedentary lifestyle, and smoking, generates an amplifying effect on the development of CVDs. Analysis of the studies shows that these factors, when present simultaneously, have a negative synergistic impact, exponentially increasing the likelihood of cardiovascular events.
An inadequate diet, rich in saturated fats, sodium and simple sugars, promotes

dyslipidemia, obesity and high blood pressure, which are primary factors for CVDs. A sedentary lifestyle, in turn, contributes to a decrease in daily caloric expenditure and increases the risk of insulin resistance, visceral adiposity and chronic inflammation. Smoking further amplifies cardiovascular damage by causing endothelial dysfunction, oxidative stress and systemic inflammation. These three risk factors combined create a pathophysiological environment conducive to the development of atherosclerosis and other progressive cardiovascular damage.

Furthermore, the interaction of these factors can trigger indirect side effects, such as greater adherence to other unhealthy lifestyle habits, including excessive alcohol consumption, which further aggravates the impact on the cardiovascular system. Individuals who present more than one of these factors simultaneously have a significantly higher probability of developing CVDs compared to those who have only one factor in isolation.

Studies highlight the substantial benefits of adopting healthy habits simultaneously, such as a balanced diet and regular physical exercise. Healthy diets, such as those based on Mediterranean or DASH (Dietary Approaches to Stop Hypertension) patterns, are rich in vegetables, fresh fruits, whole grains, olive oil and lean protein sources. These eating patterns help to reduce LDL cholesterol, improve HDL cholesterol levels, control blood glucose levels and reduce systemic inflammation.

At the same time, physical exercise, especially aerobic activities such as walking, running and swimming, reinforces the positive effects of diet, promoting metabolic and cardiovascular health. Individuals who exercise regularly experience reduced blood pressure, improved endothelial function, controlled body weight, and decreased inflammatory markers. These benefits accumulate over time, significantly reducing the risk of serious cardiovascular events.

Discussion

Modifiable risk factors, such as poor diet, physical inactivity and smoking, have been consistently associated with increased incidence of CVDs. The interaction between these factors creates a synergistic effect that amplifies cardiovascular risk, highlighting the need for integrated approaches to prevention. For example, the combination of a diet rich in saturated fats and physical inactivity not only increases obesity but also aggravates conditions such as hypertension and dyslipidemia.

Adopting healthy habits, such as a balanced diet and regular physical exercise, is effective in reducing the incidence of CVDs. Diets with Mediterranean content or with colourful dishes and a wide variety of vegetables and legumes, rich in antioxidants and monounsaturated fatty acids, have been widely cited as a protective dietary pattern, while aerobic activities, such as walking and running, have shown significant benefits in reducing BP and improving lipid profiles.

Smoking has been identified as one of the main preventable risk factors for CVDs, due to its deleterious effects on the vascular endothelium and the promotion of chronic inflammation. Smoking cessation is associated with significant cardiovascular benefits, with improvements observed within a few months of quitting the habit. Similarly, excessive alcohol consumption is associated with deleterious health conditions, while moderate consumption, especially of red wine, has cardiovascular benefits due to the presence of polyphenols. Chronic stress has considerable effects on heart health. Persistent activation of the sympathetic nervous system, together with elevated cortisol levels, is related to the

deterioration of endothelial function and an increase in the body's inflammatory response, factors that favour the onset of cardiovascular diseases. Stress management techniques can contribute to reducing cardiac risk by promoting mental well-being and reducing inflammatory processes.

Conclusion

The impact of lifestyle on the incidence of heart disease is widely recognised as a determining factor in cardiovascular health. Studies indicate that inadequate habits, such as an unbalanced diet, sedentary lifestyle, excessive alcohol consumption and smoking, significantly increase the risk of CHD. On the other hand, adopting a healthy lifestyle, including a balanced diet, regular exercise and stress management, can reduce the incidence of these diseases and improve quality of life.

Abbreviation

CVA – Cerebrovascular Accident, C - Comparison, DASH- Dietary Approaches to Stop Hypertension, CVDs - Cardiovascular Diseases, DM - Diabetes Mellitus, AH- Arterial Hypertension, HDL - High Density Lipoprotein, I- Intervention, HF- Heart Failure, CHF - Congestive Heart Failure, ACEI- Angiotensin Converting Enzyme Inhibitors, LDL - Low Density Lipoprotein, O- Outcome, WHO- World Health Organization, P- Population, BP - Blood Pressure, CRP - C-reactive Protein, PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-Analyses, CBT - Cognitive Behavioral Therapy.

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